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(11) (21)

PI 9300463-0 A

REPÚBLICA FEDERATIVA DO BRASIL
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(54) Título: Distribuidor portátil para sorvete cremoso e válvula de extração.

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(72) Inventor(es): Carlos Alberto Nóbrega de Oliveira;
Nei Vieira Trovão Filho

(57) Resumo: Patente de Invenção DISTRIBUIDOR PORTÁTIL PARA SORVETE CREMOSO E VÁLVULA DE EXTRAÇÃO, a ser carregado por um vendedor ambulante, que possibilite a venda de sorvete cremoso na areia da praia, ou em estádios esportivos. O aparelho compreende dois receptáculos (19) onde serão colocadas as embalagens (20) contendo a massa de sorvete (23), permitindo a venda simultânea de dois sabores diferentes. A embalagem deverá ter as duas extremidades abertas, para que na extremidade traseira (22) seja introduzido um êmbolo (18), a ser acionado por ar comprimido, que vai empurrar o sorvete (23) em direção à extremidade dianteira (21) da embalagem (20), onde se encontra a válvula de extração (26) de acionamento manual, que corta a massa de sorvete, deixando separado o volume correspondente a uma porção (33), e extrai esta porção para o copinho. O aparelho compreende também duas garrafas (11) para armazenamento do ar comprimido, registros para repressão destas garrafas, revestimento termo-isolante para manter a baixa temperatura do sorvete, dois conjuntos de porta-copos e pás (54), e armação tubular (69) com alças (67) e cinta (68) para fixação às costas do vendedor.

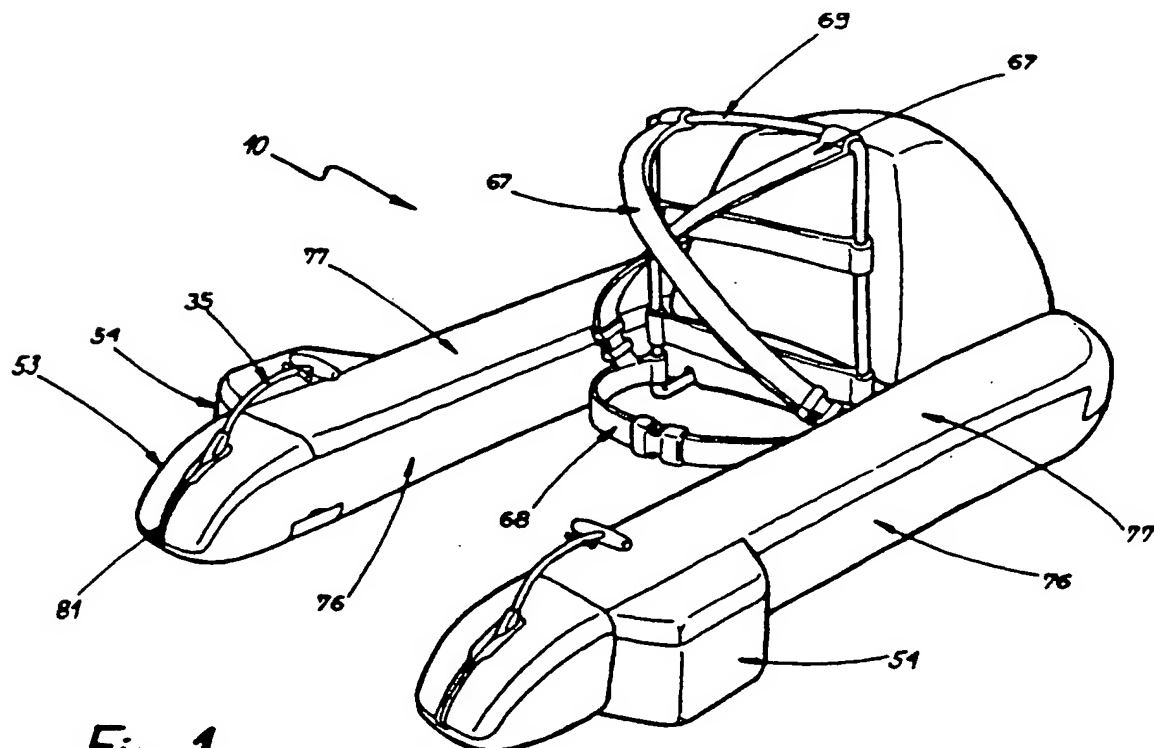


Fig. 1

XP-002226240

AN - 1994-325044 [41]

AP - BR19930000463 19930203

CPY - DOLI-I

- TROV-I

DC - D13

FS - CPI

IC - A23G9/22

IN - NOBREGA DE OLIVEIRA C A; VIEIRA TROVAO N

MC - D03-E08

PA - (DOLI-I) NOBREGA DE OLIVEIRA C A

- (TROV-I) VIEIRA TROVAO N

PN - BR9300463 A 19941004 DW199441 A23G9/22 001pp

PR - BR19930000463 19930203

XA - C1994-147930

XIC - A23G-009/22

AB - BR9300463 The device comprises two container (19) for packages (20) contg. ice cream (23), allowing simultaneous sale of two flavours. The packages have both ends open, for introducing piston (16) actuated by compressed air, into the rear end to push ice cream towards the front, where it meets a manual extraction valve (26), which separates and extracts a portion for the container.

- Also included are two compressed air bottles (11), valves for re-charging these, heat insulating coatings to keep the ice cream cold, two container carriers and a tubular framework with straps for fixing to the back.

- USE - For sale of ice cream on beaches or sports stadiums.

- (Dwg.1/1)

IW - PORTABLE ICE CREAM DISPENSE EXTRACT VALVE COMPRISE TWO COMPRESS AIR BOTTLE ACTUATE PISTON EJECT MEASURE AMOUNT CONTAINER

IKW - PORTABLE ICE CREAM DISPENSE EXTRACT VALVE COMPRISE TWO COMPRESS AIR BOTTLE ACTUATE PISTON EJECT MEASURE AMOUNT CONTAINER

INW - NOBREGA DE OLIVEIRA C A; VIEIRA TROVAO N

NC - 001

OPD - 1993-02-03

ORD - 1994-10-04

PAW - (DOLI-I) NOBREGA DE OLIVEIRA C A

- (TROV-I) VIEIRA TROVAO N

TI - Portable ice-cream dispenser and extraction valve - comprises two compressed air bottles actuating pistons for ejecting measured amts. into containers

PI 9300463-0 A

FEDERAL REPUBLIC OF BRAZIL
Ministry for Industry, Commerce and Tourism
National Industrial Property Institute

- (54) Title: Portable ice cream dispenser and extraction valve
- (71) Applicant(s): Carlos Alberto Nóbrega de Oliveira (BR/RJ); Nei Vieira Trovão Filho (BR/RJ)
- (72) Inventor(s): Carlos Nóbrega de Oliveira
Nei Vieira Trovão Filho
- (57) Summary: Patent of invention for a portable ice cream dispenser and extraction valve, to be filled by a peddler, to facilitate the sale of ice cream on the beach or in sports stadia. The equipment comprises two containers (19) holding packs (20) containing the ice cream mass (23), permitting the simultaneous sale of two different flavours. The pack should have two ends open, to allow a piston (18) to be inserted at the rear end (22), to be activated by compressed air, that pushes the ice cream (23) towards the front end (21) of the pack (20), where the extraction value is situated (28), which is operated manually, cutting the ice cream mass, separating the amount corresponding to one portion (33) and taking that portion to the cup. The equipment also comprises two bottles (11) for storing compressed air, stop valves for filling these bottles, heat insulation to keep the ice cream cool, two sets of cup and spoon holders (54) and tubular frame (69) with straps (67) and belt (68) for securing to the peddler's back.

Description of the Patent of Invention

PORTABLE ICE CREAM DISPENSER AND EXTRACTION VALVE

The object of this product is to facilitate the sale of ice cream in places where it is required, such as on the beach, where a large number of consumers do not have chilled refreshments of guaranteed quality and hygiene available. There are a large number of beach users who do not eat anything as they do not trust the quality of what is sold there. And those who normally eat the usual stick ice creams, of doubtful origin, will replace them with the tasty and nutritious ice cream. It is important to point that it is not a "soft" ice cream, also known as the "Italian" ice cream, but a thick ice cream, of the type marketed by bakers.

The project is incorporated into a distribution network already existing to an extent in several coastal towns of Brazil, in which ice cream is taken from the factory by lorries to the local shops and from there to the stalls situated on the beach streets. With the use of the portable dispenser at each stall, equipped with freezers, a number of peddlers go out, depending on the number of people on the beach. Each peddler walks on the beach, taking ice cream to consumers. After selling all the ice cream, the peddler returns to the stall to refill the equipment with compressed air, required to operate the dispenser, and with more ice cream, which may or may not be of the same flavour as the previous ice cream, and then goes back to the beach.

It is important to point out that this product is not aimed solely at large ice cream manufacturers, but also at small and medium-sized local producers, allowing them to compete on the peddling market under the same conditions as the large manufacturers.

Owing to its characteristics, the internal mechanism of the product also allows the equipment to be used for other things, as well as dispensing ice cream, such as working with dough in the preparation of gnocchi, for example.

The portable dispenser basically consists of the following parts: bottle for storing compressed air, stop valves for controlling the filling of the bottle, piston moved by compressed air, container for holding the ice cream pack, heat insulation foam, manually-activated valve for extracting the ice cream and cup and spoon holder. Two of each of these parts is provided, to sell two different flavours. The equipment also comprises a case for holding it and a tubular frame with belts for securing to the peddler's back.

For a better understanding of the operation of the dispenser, a series of illustrations is provided, comprising the following:

- Fig. 1 View of the dispenser in perspective
- Fig. 2 Exploded perspective of the dispenser
- Fig. 3 Cross-section of the piston and bellows
- Figs. 4 – 13 Operation of the dispenser
- Fig. 14 Perspective of the extraction valve
- Fig. 15 Cross-section of the extraction valve with trigger released
- Fig. 16 Cross-section of the extraction valve with trigger activated
- Figs. 17 - 22 Refilling
- Figs. 23 – 24 Cleaning

The operating principle of the portable dispenser (10), as seen in Figure 2, is as follows: The bottle (11), which is initially filled, contains compressed air. The air passes through the outlet nozzle of the bottle (12), through the T connection (13) and then through the bellows stop valve (15), that is open, and from there to the bellows (16), that are compressed and remain pressurized. The bellows (16) are situated in the rear part of the container (19), housing the pack (20) containing the ice cream (23). The pack will be closed by the factory, with a label indicating the flavour, and should be opened at both the front end (21) and at the rear (22), before being placed in the container (19). A U-

shaped heat insulating foam block (51) surrounds the container to keep the ice cream cool. The front end of the bellows (16) is housed in the piston (18), and, between these two parts, a piston foam block (17) provides heat insulation between the ice cream mass and the compressed air in the bellows, which is at room temperature. The front end of the bellows (16) and the piston (18), better illustrated in Figure 3, fit together by means of a projection inside the piston (24) and a recess (25) at the end of the bellows (16). In Figure 2, the pressure of the air inside the bellows (16) causes the internal volume to increase, and its length to lengthen accordingly, and this lengthening causes the piston (18) and the ice cream mass (23) to move towards the front end (21) of the pack (20). The extraction valve (26) is situated there, consisting of a lever (27) and trigger (28), blade (29) and extruder (30) which, when manually activated by the peddler, cuts from the ice cream mass (23) the amount corresponding to one portion and then draws it through the outlet (31) in the upper part of the container (19) to the cup (not illustrated).

All these components are situated inside the two side arms (76), also shown in Figure 1, permitting the simultaneous sale of two different flavours of ice cream. The arms have a sliding cap (77), to allow access to the ice cream pack (20) and the bottle filling stop valves (11), when the dispenser has to be refilled. This sliding cap (77) has a flat block of heat insulating foam (52) for the heat insulation of the upper part of the ice cream pack (20). A separator (78) isolates the flat block of heat insulating foam (52) from the pack (20). The side arms (76) also have a ice cream outlet cap (74), just below the ice cream outlet (31). This cap is kept closed by the action of the cap spring (75).

The cup and spoon containers (54) are located outside the two side arms (76) of the portable dispenser, shown in Figures 1 and 2, that are easy for the peddler to operate, simply by opening the container cap from the side (55) to gain access to the cups (56) and spoons (57). An internal delimiter establishes the spaces for the spoons and cups, and has slots to prevent more than one cup from being taken at a time.

The portable dispenser is secured to the peddler's back by means of adjustable belts, illustrated in Figures 1 and 2. Two straps (67) pass over the peddler's shoulders, crossing over on his chest, and a belt (68) goes round his waste. This belt (68) contains a pocket (not illustrated) for keeping money. The belts are secured to a tubular frame (69), that provides comfort for the peddler, so that his back is not in contact with the surface of the bottles (11) and so that he only relies on two rear support straps (65 and 66). This allows air to circulate in that region and prevents irritation to the peddler's skin. The tubular frame (69) is secured to the bottle tray (70). The bottles (11) have securing holes (73) in the lower part to be placed in the tray, inserted under pressure in projections (72) in the internal walls of the bottle tray (70).

To give the dispenser a better finish and to facilitate cleaning, a cover (not illustrated) is placed over the two bottles (11), secured at the height of the bottle tray (70). This cover allows the ice cream manufacturer to display his brand, price per portion or anything else he wishes.

As stated above, the ice cream extraction valve performs two functions: it cuts the ice cream mass, separating the amount of one portion, and it takes that amount to the cup. To avoid the use of two levers, a mechanism has been developed, that will be explained below, that connects just one lever to the blade or to the extruder, performing both tasks with a single part.

The operation of the portable dispenser, illustrated in Figures 4 – 13, is as follows: In the rest position, as shown in Figure 4, the bellows (16), containing pressurized air, constantly drive the piston (18) forwards, and the blade (29), which is in the closed position, obstructs the opening of the front end (21) of the pack (20), preventing the ice cream (23) from advancing in that direction. The peddler opens the ice cream outlet cap (74) and, as shown in Figure 5, places the cup (79) in position. He then activates the trigger (28), connecting the lever (27) to the blade (29). In Figure 6, the lever (27) moves forwards, drawing the blade (29) and releasing the front end (21) of the pack. The ice cream (23) then advances, as shown in Figure 7, until it reaches the extruder (30). In Figure 8, the peddler returns the lever (27) to the previous position, causing the blade (29) to cut the ice cream (23), closing the front end of the pack again and separating the amount of ice cream corresponding to one portion (33). The trigger (28) is then released, as shown in Figure 9, and the lever (27) moves forwards once again, as shown in Figure 10, when the lever (27) connects with the extruder (30). In Figure 11, the peddler turns the lever (27) backwards, pulling the extruder (30) which compresses the amount of ice cream corresponding to one portion (33) against the outlet (31) in the front of the container (19) of the pack (20). In Figure 12, when the lever (27) is pulled backwards, the amount of ice cream corresponding to one portion (33) is taken and placed in the cup (79). As shown in Figure 13, the peddler then closes the ice cream outlet cap (74) and activates the trigger (28), disconnecting the lever (27) from the extruder (30), which returns to its rest position with the help of two return springs (80), illustrated in Figures 2, 14, 15, and 24. In Figure 13 too, when the extruder (30) returns to its rest position, the blade (29) does not follow this movement, as it is connected to the lever (27), as the trigger (28) is activated. The peddler then releases the trigger (28) and the equipment is ready to serve another portion.

The mechanism causing the extraction valve lever to connect with the blade or the extruder, illustrated in Figures 14 – 16, comprises a system of pins situated in a fork (45), at the bottom end of the tubular rod (35), inside the valve, which, on activation of the trigger (28), enters the holes in the side walls of the blade (29) or the extruder (30). When the lever turns around the axis of rotation (46), just the part housing the pins follows the movement.

The extraction valve unit (26) consists of the handle (34), tubular rod (35), trigger (28), cable (36), pulley (39), pin movement rods (40 and 41), connecting pins to the extruder (42), connecting pins to the blade (43), traction spring (44), fork (45), blade (29) and extruder (30).

With the trigger (28) loose, as illustrated in Figure 15, the traction spring (44) remains compressed, drawing the connecting pins to the blade (43), and forcing the connecting pins to the extruder (42). If the holes of the side walls of the extruder (30) are aligned with the connecting pins to the extruder (42), the connection is made, as shown in Figure 15. On turning the lever around its axis of rotation (46), the extruder (30) is also turned, leaving the blade (29) stationary. If the holes are out of alignment, the connecting pins to the extruder (42), connecting pins to the blade (43) moving rods of the pins (40 and 41) and the traction spring (44) remain in an intermediate position, and the connection is not made. This is the rest position.

On activating the trigger (28), as illustrated in Figure 16, the cable (36) is pushed by the upper end (37). It moves inside the tubular rod (35), passing through the pulley (30), and the lower end (38) of the cable pushes the moving rods of the pins (40 and 41), making them turn on their own axes (47 and 48). With this movement, the connecting pins to the extruder (42) are compressed and the connecting pins to the blade (43) are pushed outwards. If the holes of the side walls of the blade (29) are aligned with the connecting pins to the blade (43), the connection is made, disconnecting the lever from the extruder (30) and connecting it with the blade (29). As the lever turns on the axis of rotation (46), the blade (29) also turns, leaving the extruder (30) stationary.

As stated, the portable dispenser provides for the replacement of compressed air and ice cream, whenever the peddler returns with the equipment empty. This replacement, illustrated in Figures 17 - 22, is effected by pushing the sliding caps (77) of the side arms (76) back, as shown in Figure 17, sliding them on tracks (not illustrated) until they come out. Once the cap is removed, the ice cream pack (20) and the compressed air bottle filling stop valves (11) can be accessed. The filling stop valve (14) is opened, depressurising the air and, as shown in Figure 18, the empty pack (20) removed. The bellows (16) have no internal pressure and are therefore more flexible. The piston (18) and the entire bellows (16) are compressed, as shown in Figure 19, and the bellows stop valve (15) is closed, to keep it compressed, as this prevents air from getting inside. With an electric compressor or manual pump, as shown in Figure 20, the bottle (11) is filled to the desired pressure, through the feed stop valve (14), closing it afterwards. The new pack (20) filled with ice cream is placed in position, as shown in Figure 21, previously opened at the two ends, placing the piston (not illustrated) and the bellows (16) at the rear end (22). In Figure 22, the bellows stop valve (15) is then opened, releasing the compressed air from inside the bottle (11) to the bellows (16), and the sliding cap (77) is closed. The dispenser is refilled.

For daily cleaning of the product at the local distributors, the sliding cap (77) is opened, as explained, and, as illustrated in Figures 23 and 24, the extraction valve cap (53) is also opened. The extraction valve (26) is then moved upwards, taking with it the side supports (59 and 60) and the extruder return springs (80). The side supports (59 and 60) slide in the valve tracks (63) that are secured to the interior walls in the front of the side arms (76). When the valve is removed, it can be washed with a jet of water and a small brush. The extraction valve cap (53) has a groove (81), also shown in Figures 1 and 2, through which the tubular rod (35) of the valve passes and, to prevent impurities from

getting into the groove (81), two flexible strips (82) have been inserted that only open as far as the tubular rod (35), preventing the rest from opening.

CLAIMS

1. Portable ice cream dispenser, loaded and operated by a peddler, consisting of a piston activated by compressed air, to move the ice cream, in its pack, towards an extraction valve, characterized by the fact that the portable dispenser (10) consists of a frame, composed of side arms (76) and a bottle tray (70), housing bottles (11) containing pressurized air, each of such bottles (11) being connected to air filling stop valves connected, inside the aforesaid side arms (76) to bellows (16) situated inside a piston (18), that acts within the ice cream pack (20), housed inside a container (19) with an outlet (31), a heat insulation coating, the aforesaid outlet (31) being protected by a ice cream outlet cap (74) situated in the aforesaid side arms (76), all selectively activated by the ice cream extraction valve (26).
2. Portable ice cream dispenser, according to claim 1, characterized by the fact that the aforesaid side arms (76) have a cap (77) to access the interior, fitted with a flat block of heat insulating foam (32) separated from the aforesaid ice cream pack (20) by means of a separator (78).
3. Portable ice cream dispenser, according to claim 1, characterized by the fact that the aforesaid bottle tray (70) has projections (72) in its interior walls for pressurized insertion in securing holes (73) in the lower part of the aforesaid bottle (11).
4. Portable ice cream dispenser, according to claim 1, characterized by the fact that the aforesaid bottle (11) has a bottle outlet nozzle (12) for direct connection to the aforesaid air filling stop valves.
5. Portable ice cream dispenser, according to claim 1, characterized by the fact that there is a foam piston block (17) between the aforesaid bellows (16) and the aforesaid piston (18).
6. Portable ice cream dispenser, according to claim 1, characterized by the fact that the aforesaid heat insulation surrounding the aforesaid container (19) is a U-shaped heat insulating foam block (51).
7. Portable ice cream dispenser, according to claim 1, characterized by the fact that the aforesaid heat insulation optionally consists of three flat foam heat insulating blocks, placed around the aforesaid container (19).
8. Portable ice cream dispenser, according to claim 1, characterized by the fact that there is an extraction valve (26) in the front of the aforesaid container (19) to cut off and collect the ice cream from inside the pack (20), the aforesaid extraction valve (26) being inserted in valve tracks (63) secured to the internal walls of the aforesaid side arms (76).

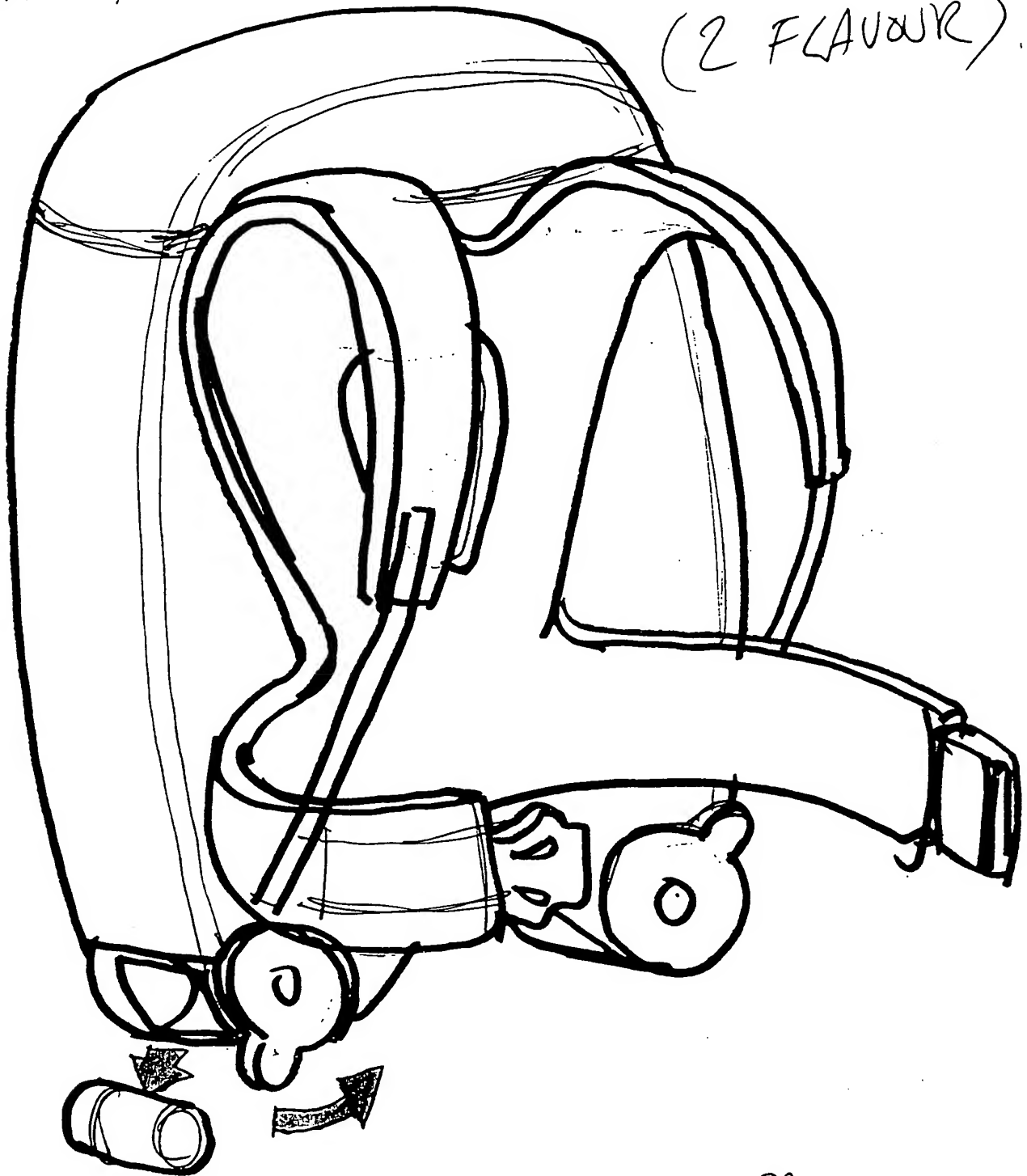
9. Portable ice cream dispenser, according to claim 1, characterized by the fact that there is an extraction valve cap (53) in the front of the aforesaid side arms (76) immediately above the aforesaid extraction valve, with a groove (81) through which the tubular rod (35) of the aforesaid extraction valve (26) passes, in which two flexible strips (82) are secured to close the aforesaid groove (81).
10. Portable ice cream dispenser, according to claim 1, characterized by the fact that the aforesaid side arms (76) have cup and spoon containers (54), fitted with a cap (55) and internal delimiter (58), in which to place the cups (56) and the spoons (57), the internal delimiter (58) having slots (59) for holding the cups.
11. Portable ice cream dispenser, according to claim 1, characterized by the fact that a tubular frame (69) with straps (67) and belt (68) for securing to the peddler are secured to the aforesaid bottle tray (70).
12. Extraction valve for the selective dispensing of one portion of semi-solid product from one pack, cutting that portion and taking it to a container, characterized by the fact that the aforesaid extraction valve (26) consists of a pin (34) firmly mounted at one end of a tubular rod (35), whose other end is connected to a fork (45) pivoting around an axis of rotation (46), and the aforesaid tubular rod (35) also has a trigger (28) connected to a sliding cable (36) inside the aforesaid tubular rod (35), passing through a pulley (39), the lower end (38) of the aforesaid cable (36) being connected simultaneously to the lower ends of the cores of two moving rods of the T-shaped pins (40 and 41), pivoting around their axes (47 and 48), situated at the point of intersection between the crown and the core of the aforesaid moving rods of pins (40 and 41) the aforesaid axes (47 and 48) secured to the aforesaid fork (45), the ends of the crowns of each of the aforesaid moving rods of the pins (40 and 41) being connected to connecting pins to the extruder (42) and connecting pins to the blade (43), and these pins being selectively inserted in a blade (29) or in an extruder (30), and the aforesaid connecting pins to the blade (43) being compressed by the action of a traction spring (44), secured at the same points at which the aforesaid connecting pins to the blade (43) are secured to the aforesaid moving rods of the pins (40 and 41).
13. Extraction valve, according to claim 14, characterized by the fact that it has two side supports (59 and 60) supporting the return springs (80) of the aforesaid extruder (30).

[See original for diagrams]

SUMMARY

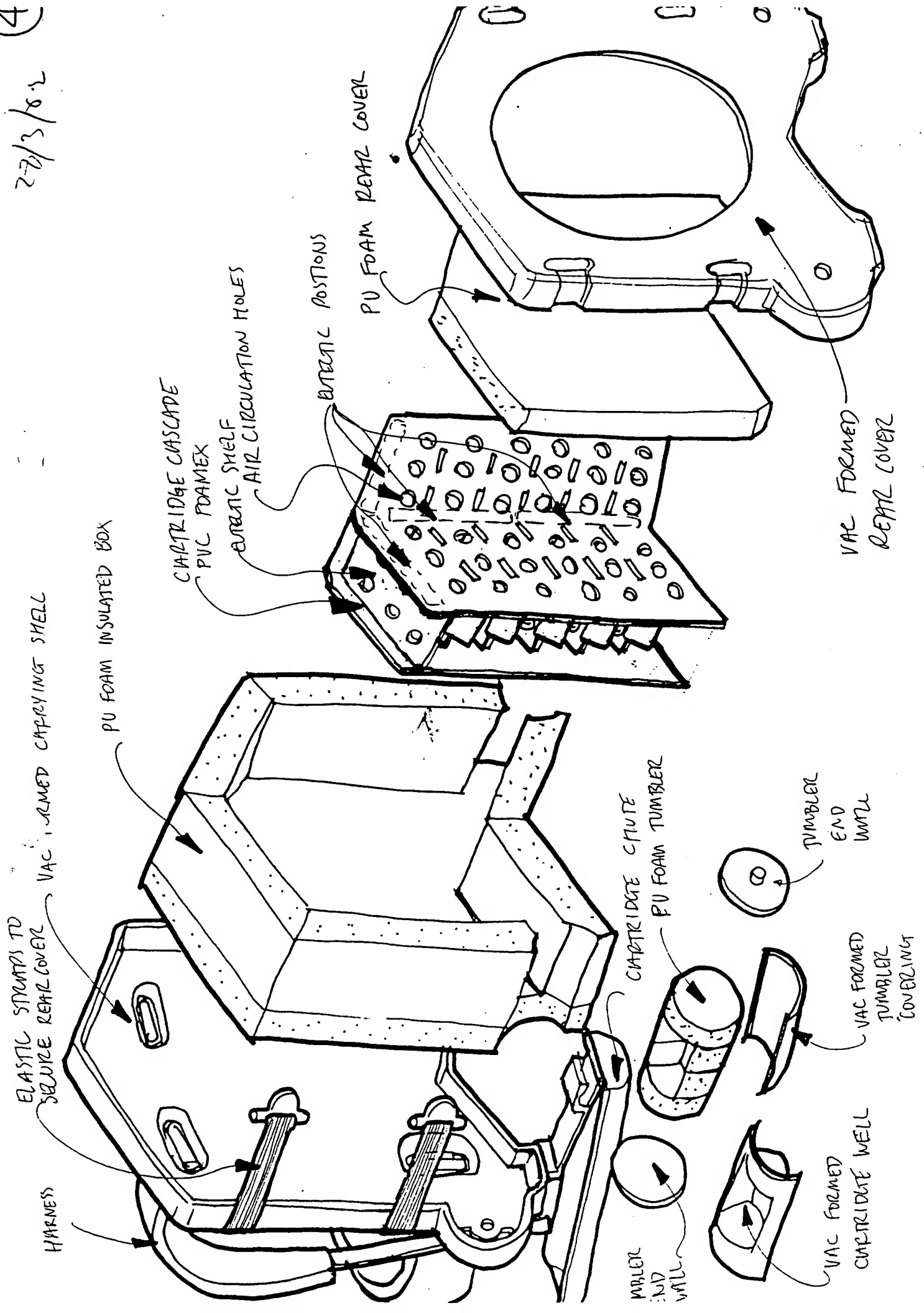
Patent of invention for a portable ice cream dispenser and extraction valve, to be filled by a peddler, to facilitate the sale of ice cream on the beach or in sports stadia. The equipment comprises two containers (19) holding packs (20) containing the ice cream mass (23), permitting the simultaneous sale of two different flavours. The pack should have two ends open, to allow a piston (18) to be inserted at the rear end (22), to be activated by compressed air, that pushes the ice cream (23) towards the front end (21) of the pack (20), where the extraction valve is situated (28), which is operated manually, cutting the ice cream mass, separating the amount corresponding to one portion (33) and taking that portion to the cup. The equipment also comprises two bottles (11) for storing compressed air, stop valves for filling these bottles, heat insulation to keep the ice cream cool, two sets of cup and spoon holders (54) and tubular frame (69) with straps (67) and belt (68) for securing to the peddler's back.

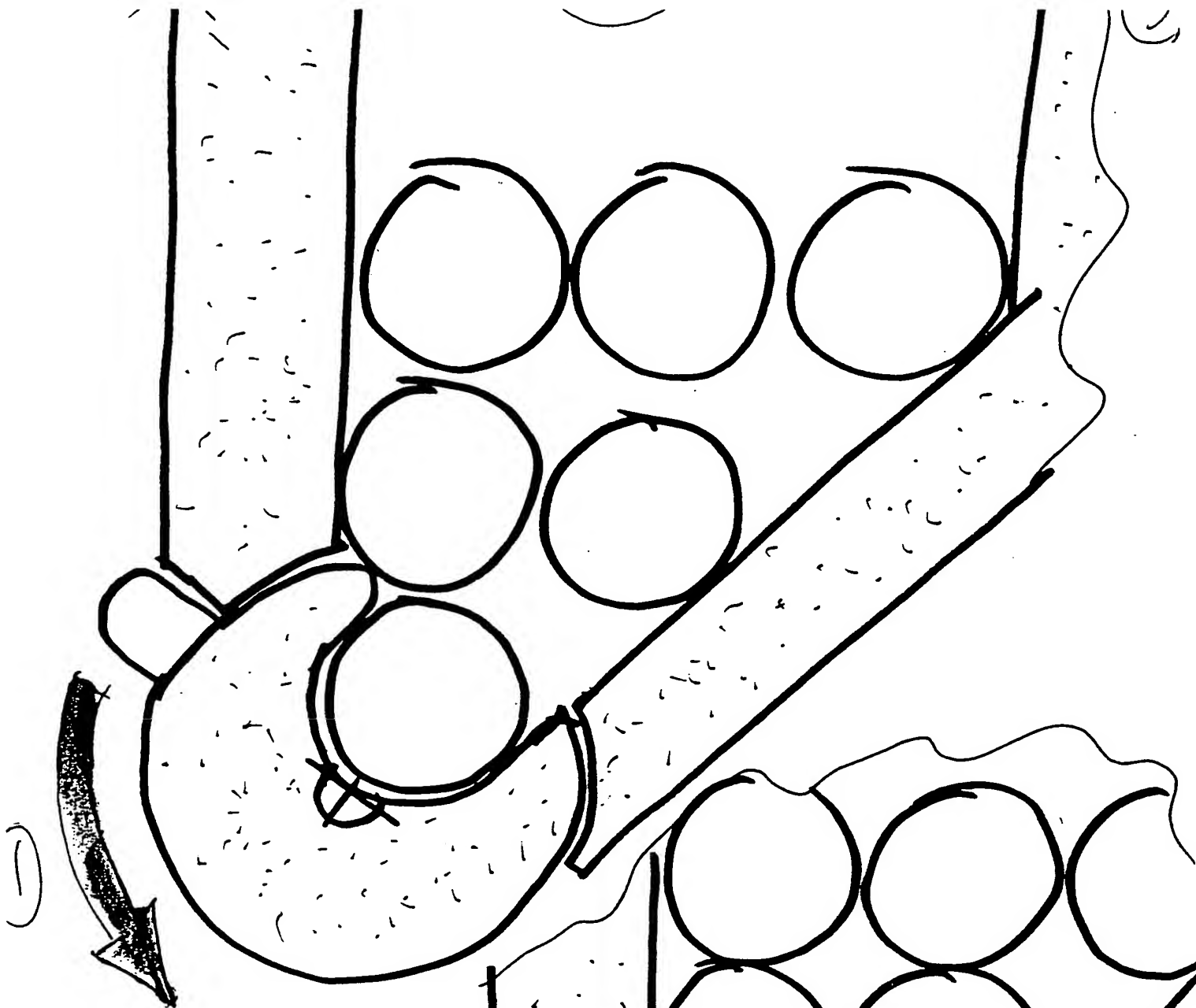
GRAVITY FED DOUBLE SIDED DISPENSER (2 FLAVOUR)



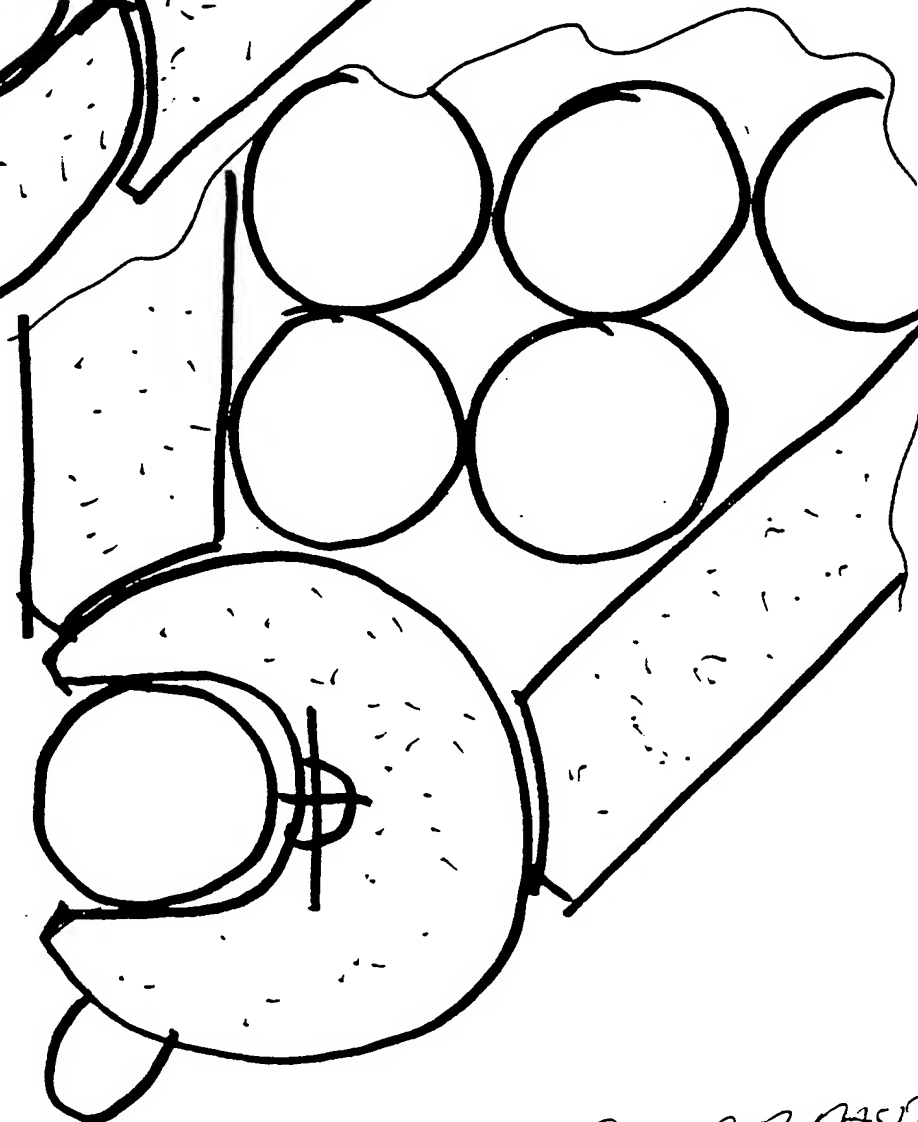
1/4 TURN SPRUNG LEVER
ROTATES CYLINDER TO EJECT
CARTRIDGE

2-27/3/82





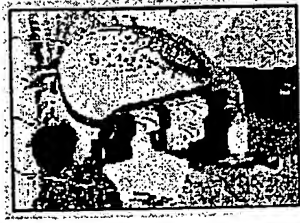
1 PRESS DOWN ON
LEVER



2 CARTRIDGE IS
FREE - FALLS
INTO USERS HAND.

3 CYLINDERS SPRING BACK TO 1 WHEN RELEASE

Eutectic Positioning Options



Shots Backpack

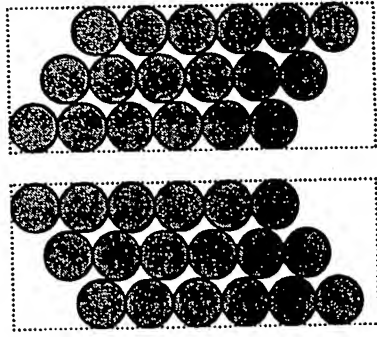


Cartridge

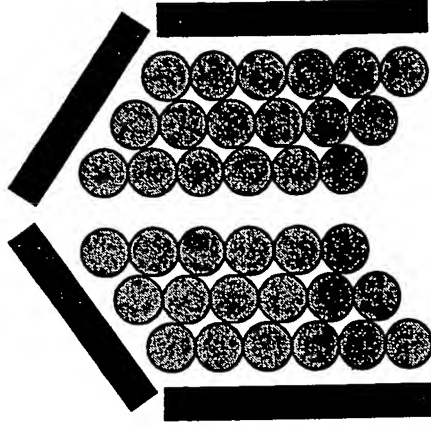


Softpack

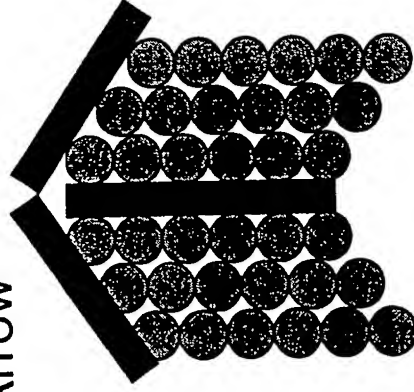
1. Face



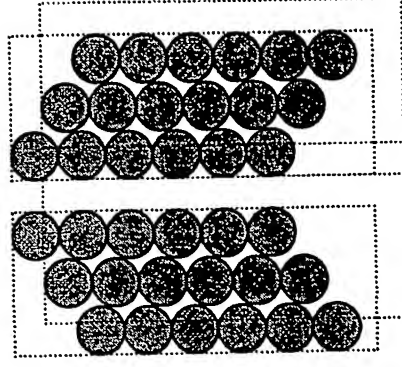
2. House



3. Arrow



4. Sandwich



Preferred options are the 'Face' and 'House' Concepts due to best ratio of surface cover/total eutectic weight.

Technical Design of Arm



Shots Backpack

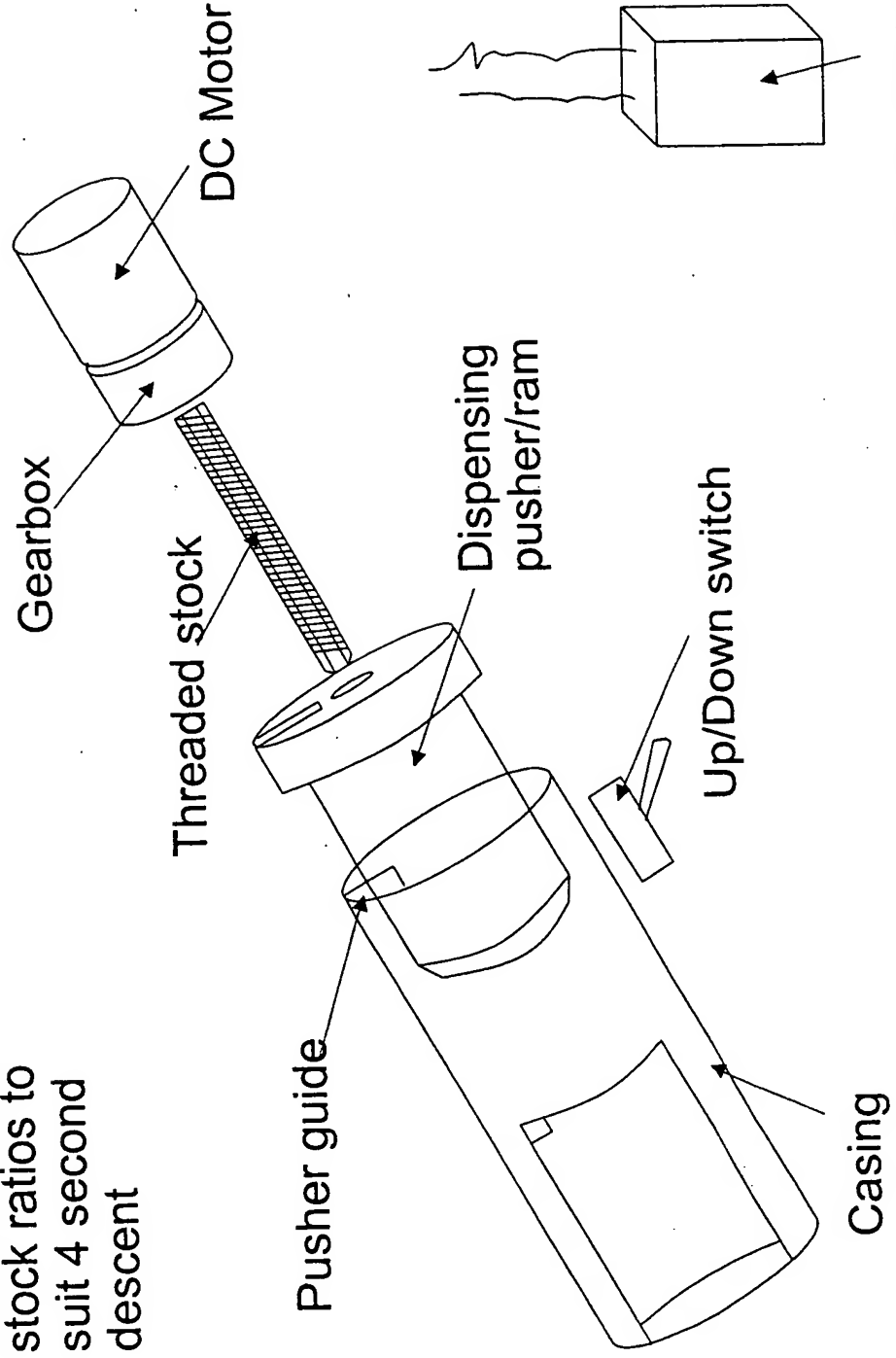


Cartridge



Softpack

Gearbox, motor
speed, threaded
stock ratios to
suit 4 second
descent



12 volt Battery